



BsF(ab')<sub>2</sub>  
CHEMICALLY COUPLED  
RODENT FRAGMENTS

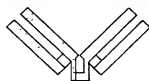


FIG. 2A

BsF(ab')<sub>2</sub>  
CHEMICALLY COUPLED  
E. coli DERIVED FRAGMENTS

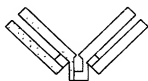


FIG. 2B

BsF(ab')<sub>2</sub>  
LEUCINE ZIPPER  
ASSEMBLED

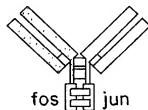
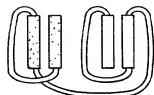


FIG. 2C



sFv DIMER

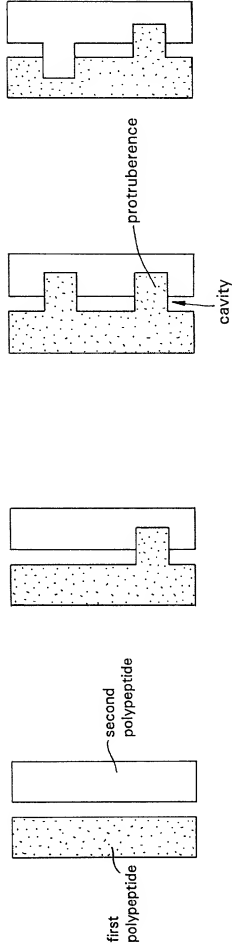
FIG. 2E



DIABODY

FIG. 2D

FIG. 3C



Wild  
Type

single mutants

double mutants

double mutants

FIG.4

edge, interface  
-----  
B i B I B I B i

|     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IgG | G | Q | P | R | E | P | Q | V | Y | T | L | P | P | S | R | E | E | M | T | K | N | Q |   |   |
| IgA | G | N | T | F | R | P | Q | V | H | L | L | P | P | P | S | E | E | L | A | L | B | Z | L |   |
| IgD | Q | A | P | V | K | L | S | L | N | L | L | A | S | S | D | P | - | - | P | E | A | A | A |   |
| IgE | G | P | R | A | A | P | E | V | Y | A | F | A | T | P | E | W | P | G | S | R | D | K | K |   |
| IgM | - | D | Z | B | T | A | I | R | V | F | A | I | P | P | S | F | A | S | I | F | L | T | K | S |

350 360

| middle, interface |   |   |   |   |   |   |   |   |   |   |   | exterior |   |   |   |   |   |   |   |   |   |   |   |
|-------------------|---|---|---|---|---|---|---|---|---|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|
| -----             |   |   |   |   |   |   |   |   |   |   |   | -----    |   |   |   |   |   |   |   |   |   |   |   |
|                   | B | I | B | I | B | I | B | I | B | i |   | B        | B | B |   |   |   |   |   |   |   |   |   |
| IgG               | V | S | L | T | C | L | V | K | G | F | Y | P        | S | D | I | A | V | E | W | E | S | N |   |
| IgA               | V | T | L | T | C | L | A | R | G | F | S | P        | K | D | V | L | V | R | W | L | Q | G |   |
| IgD               | S | W | L | L | C | E | V | S | G | F | S | P        | P | N | I | L | L | M | W | L | E | D | Q |
| IgE               | R | T | L | A | C | L | I | Q | N | F | M | P        | E | D | I | S | V | Q | W | L | H | N |   |
| IgM               | T | K | L | T | C | L | V | T | D | L | T | T        | Y | B | S | V | T | I | S | W | T | R | Z |

370 380

edge, interface  
-----  
I i I

|     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|
| IgG | D | - | G | Q | P | E | N | N | Y | K | T | T | P | P | V | /M | L | D | S | D | G | S |   |
| IgA | S | Q | E | L | P | R | E | K | Y | L | T | W | A | S | R |    | Q | Z | P | S | Q | T | T |
| IgD | R | E | V | N | T | S | G | F | A | P | A | R | P | P | P |    | Q | P | G | S | T | T |   |
| IgE | E | V | Q | L | P | D | A | R | H | S | T | T | Q | P | R |    | K | T | K | G | S | G |   |
| IgM | D | - | - | G | E | A | V | K | T | H | T | B | I | S | Z |    | S | H | P | B | A | T |   |

390 400

| middle, interface |   |   |   |   |   |   |    |   |   |   |   | exterior |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-------------------|---|---|---|---|---|---|----|---|---|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -----             |   |   |   |   |   |   |    |   |   |   |   | -----    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|                   | B | I | B | I | B | I | B  | i | B |   | B |          |   |   |   | B | B | B |   |   |   |   |   |   |   |   |
| IgG               | F | F | L | Y | S | K | /R | L | T | V | D | K        | S | R | W | Q | Q | G | N | V | F | S | C | S | V | M |
| IgA               | F | A | V | T | S | I |    | L | R | V | A | A        | E | D | W | K | K | G | D | T | F | S | C | M | V | G |
| IgD               | F | W | A | W | S | V |    | L | R | V | P | A        | P | P | S | P | Q | P | A | T | Y | T | C | V | V | S |
| IgE               | F | F | V | F | S | R |    | L | E | V | T | R        | A | E | W | E | Q | K | G | E | F | I | C | R | A | V |
| IgM               | F | S | A | V | G | E |    | A | S | I | C | E        | B | B | W | B | S | G | E | R | F | T | C | T | V | T |

410 420

exterior  
-----  
b b b

|     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|
| IgG | H | E | A | L | H | N | H | Y | T | Q | K | S | L | S | L | S | P | G | K |   |  |  |  |  |
| IgA | H | E | A | L | P | L | A | F | T | Q | K | T | I | D | R | L | A | G | K |   |  |  |  |  |
| IgD | H | E | D | - | S | R | T | L | L | N | A | S | R | S | L | E | V | S | Y |   |  |  |  |  |
| IgE | H | E | A | A | S | P | S | Q | T | V | Q | R | A | V | S | V | N | P | G | K |  |  |  |  |
| IgM | H | T | D | L | P | S | P | L | K | Q | T | I | S | R | P | K | - | - | - |   |  |  |  |  |

430 440

FIG.5



|        | EDGE  |       |       |       | MIDDLE |       |       |       | 450   |       |       |   |
|--------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|---|
|        | ↓     | ↓     | ↓     | ↓     | ↓      | ↓     | ↓     | ↓     | ↓     | ↓     | ↓     | ↓ |
| hIgG1  | T     | T     | P     | P     | V      | L     | D     | S     | -     | D     | -     | - |
| hIgG2  | T     | T     | P     | P     | M      | L     | D     | S     | -     | D     | -     |   |
| hIgG3  | T     | T     | P     | P     | M      | L     | D     | S     | -     | D     | -     |   |
| hIgG4  | T     | T     | P     | P     | V      | L     | D     | S     | -     | D     | -     |   |
| mIgG1  | N     | T     | Q     | P     | I      | M     | B     | T     | -     | B     | -     |   |
| mIgG2A | N     | T     | A     | T     | V      | L     | D     | S     | -     | D     | -     |   |
| mIgG2B | B     | T     | A     | P     | V      | L     | D     | S     | -     | D     | -     |   |
| mIgG3  | N     | T     | P     | P     | I      | L     | D     | S     | -     | D     | -     |   |
| *****  | ***** | ***** | ***** | ***** | *****  | ***** | ***** | ***** | ***** | ***** | ***** |   |
| 451    | 451   | 451   | 451   | 451   | 451    | 451   | 451   | 451   | 451   | 451   | 451   |   |
| hIgG1  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgE   | K     | D     | E     | F     | I      | C     | R     | A     | V     | H     | E     |   |
| hIgG2  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG3  | G     | N     | I     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG4  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| mIgG1  | G     | N     | T     | F     | T      | C     | S     | V     | L     | H     | E     |   |
| mIgG2A | G     | S     | L     | F     | A      | C     | S     | V     | V     | H     | E     |   |
| mIgG2B | T     | D     | S     | F     | S      | C     | N     | V     | R     | H     | E     |   |
| mIgG3  | G     | E     | I     | F     | T      | C     | S     | V     | V     | H     | E     |   |
| *****  | ***** | ***** | ***** | ***** | *****  | ***** | ***** | ***** | ***** | ***** | ***** |   |
| 460    | 460   | 460   | 460   | 460   | 460    | 460   | 460   | 460   | 460   | 460   | 460   |   |
| hIgG1  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgE   | K     | D     | E     | F     | I      | C     | R     | A     | V     | H     | E     |   |
| hIgG2  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG3  | G     | N     | I     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG4  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| mIgG1  | G     | N     | T     | F     | T      | C     | S     | V     | L     | H     | E     |   |
| mIgG2A | G     | S     | L     | F     | A      | C     | S     | V     | V     | H     | E     |   |
| mIgG2B | T     | D     | S     | F     | S      | C     | N     | V     | R     | H     | E     |   |
| mIgG3  | G     | E     | I     | F     | T      | C     | S     | V     | V     | H     | E     |   |
| *****  | ***** | ***** | ***** | ***** | *****  | ***** | ***** | ***** | ***** | ***** | ***** |   |
| 470    | 470   | 470   | 470   | 470   | 470    | 470   | 470   | 470   | 470   | 470   | 470   |   |
| hIgG1  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgE   | K     | D     | E     | F     | I      | C     | R     | A     | V     | H     | E     |   |
| hIgG2  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG3  | G     | N     | I     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG4  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| mIgG1  | G     | N     | T     | F     | T      | C     | S     | V     | L     | H     | E     |   |
| mIgG2A | G     | S     | L     | F     | A      | C     | S     | V     | V     | H     | E     |   |
| mIgG2B | T     | D     | S     | F     | S      | C     | N     | V     | R     | H     | E     |   |
| mIgG3  | G     | E     | I     | F     | T      | C     | S     | V     | V     | H     | E     |   |
| *****  | ***** | ***** | ***** | ***** | *****  | ***** | ***** | ***** | ***** | ***** | ***** |   |
| 480    | 480   | 480   | 480   | 480   | 480    | 480   | 480   | 480   | 480   | 480   | 480   |   |
| hIgG1  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgE   | K     | D     | E     | F     | I      | C     | R     | A     | V     | H     | E     |   |
| hIgG2  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG3  | G     | N     | I     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| hIgG4  | G     | N     | V     | F     | S      | C     | S     | V     | M     | H     | E     |   |
| mIgG1  | G     | N     | T     | F     | T      | C     | S     | V     | L     | H     | E     |   |
| mIgG2A | G     | S     | L     | F     | A      | C     | S     | V     | V     | H     | E     |   |
| mIgG2B | T     | D     | S     | F     | S      | C     | N     | V     | R     | H     | E     |   |
| mIgG3  | G     | E     | I     | F     | T      | C     | S     | V     | V     | H     | E     |   |
| *****  | ***** | ***** | ***** | ***** | *****  | ***** | ***** | ***** | ***** | ***** | ***** |   |

FIG. 6B

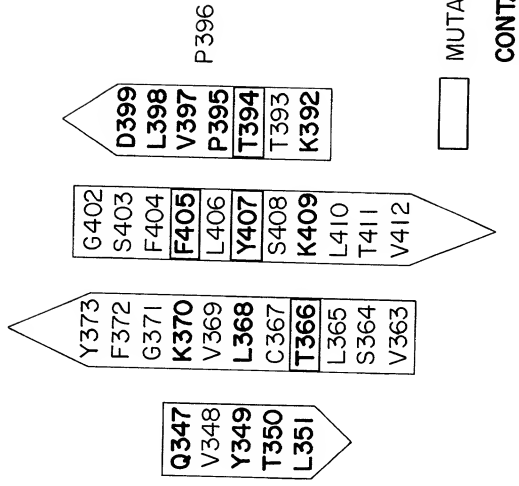


FIG. 7



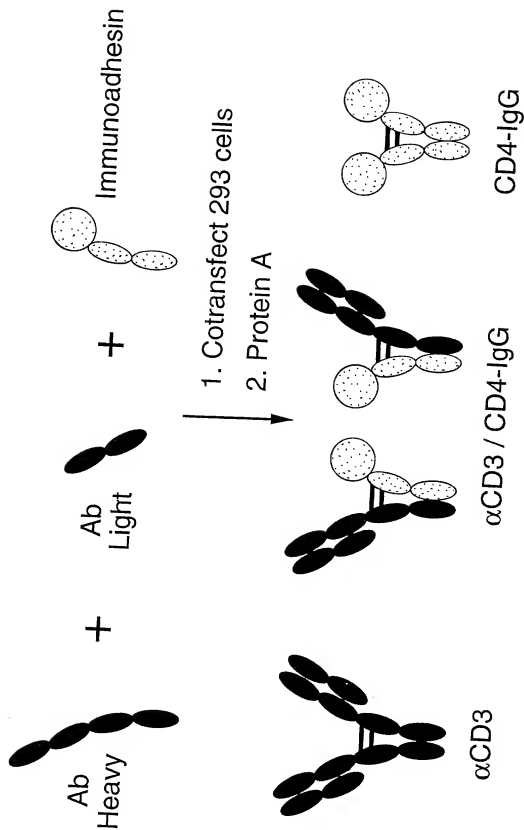


FIG.8

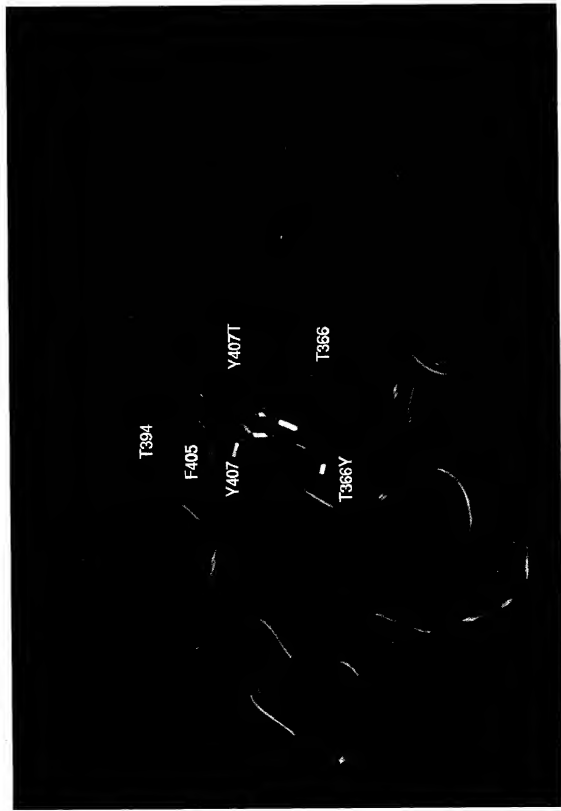
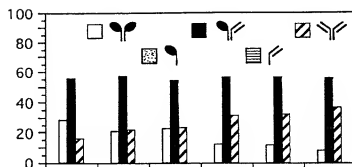


FIG. 9

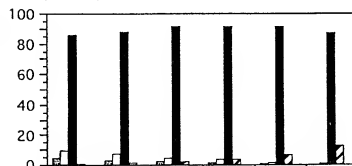
FIG.10A



Ab/Ia

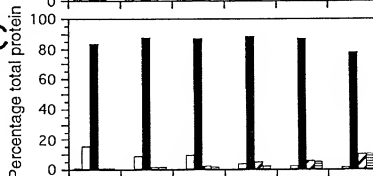
WT/WT

FIG.10B



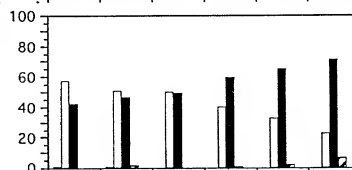
Y407T/T366Y

FIG.10C



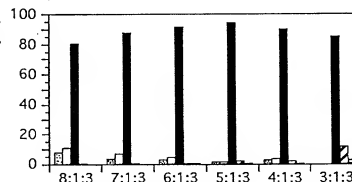
T366Y/Y407T

FIG.10D



F405A/T394W

FIG.10E

T366Y:F405A/  
T394W:Y407T

Ratio of Input DNA: IA : H : L